

MEMORANDUM

Date:	June 7, 2019	TG:	1.18149.00
To:	Jeremy Metzler, PE, Public Works Director		
From:	Brett Schock, PE, AICP, RSP, Transpo Group		
cc:	Taryn Solie, Transpo Group Jon Pascal, PE, Transpo Group		
Subject:	36th Street E & Meridian Avenue E Park Access Safety Analysis		

This memorandum reviews the safety concerns of the proposed entry driveway location for the City Park located on the northeast corner of 36th Street E and Meridian Avenue E. Transpo evaluated existing conditions and the current park proposal, performed a qualitative safety analysis for the proposed driveway location and developed alternative recommendations for the City to consider.

Existing Conditions

The proposed park will be located east of and adjacent to Meridian Avenue E, north of and adjacent to 36th Street E. Currently the site is open green space, used for activities like walking and nature viewing. Meridian Avenue E, also known as State Route 161, runs along the west frontage of the proposed park site. It is a high-volume principal arterial with a posted speed limit of 35 mph. It has two through travel lanes (one in each direction) and a two-way left-turn lane at the northern end of the park frontage. A second northbound through lane is merged into this single northbound travel lane between the intersection of 36th Street E and the northern limit of the park frontage, while the two-way left turn lane becomes a dedicated southbound left turn lane at the 36th Street intersection. South of the intersection with 36th Street E, Meridian Avenue E expands to three through lanes (one southbound, two northbound) with a dedicated northbound left turn lane at 36th Street E. There are no pedestrian or bicycle facilities located in the vicinity of the proposed park and the shoulders next to the site are paved and narrow (approximately 2 feet or less). A transit stop is located on Meridian Avenue E roughly 120 feet north of the intersection with 36th Street E on the project frontage.

36th Street E is a two-lane roadway that runs along the project's south frontage. It has a posted speed limit of 25 mph and no pedestrian or bicycle facilities located in the vicinity of the proposed park, with narrow gravel shoulders on both sides of the roadway.

The collision history was also reviewed at the proposed park entry location, which is on the northwest corner of the site, east of Meridian Avenue E. The data extends roughly 250 feet on either side of the proposed entrance.

Table 1. 2015-2017 Collision History by Type Near Proposed Park Entrance off Meridian Ave E					
Year	Rear-End	Sideswipe	Angle	Turn	Total
2015	2	1	0	0	3
2016	2	1	0	1	4
2017	1	0	2	0	3
Total	5	2	2	1	10
Average	1.67	0.67	0.67	0.33	3.33

1. Data obtained from WSDOT in February 2018.

As shown in Table 1, there is an average of 3.3 collisions per year near the park entrance. The most common type of collision is rear-end, with sideswipe and angle tying for the second most common type. Rear-end collisions were mostly due to inattention; both sideswipe collisions occurred in the northbound direction near the merge point of the roadway. None of the collisions resulted in a fatality and only one resulted in a possible injury.

Collision data was also reviewed along 36th Street E, west of the intersection with Meridian Avenue E, however no collisions were reported on that segment of roadway during this time frame.

Proposed Park

The proposed park would be located adjacent to Meridian Avenue E (SR 161) and 36th Street E. The park would be developed over time based on a phased master plan, with the first phase including an inclusive playground, trail loop, play courts, picnic shelter, amphitheatre, restrooms, and new 60-car parking lot. As previously mentioned, the currently proposed entrance to the parking lot is on the northwest corner of the site, east of Meridian Avenue E. Figure 1 shows the layout of the Park Master Plan.



Figure 1. Park Master Plan

Safety Evaluation

Per the City's request, Transpo evaluated safety conditions at the proposed driveway location and identified the following concerns:

- The park entry is proposed along Meridian Avenue E where the two northbound lanes are merging together (see Figure 2). This may cause issues with merging traffic as there are two conflict points (merge and driveway) occurring at the same location. Additionally, the vertical grade at this point could lead to speed concerns and sight distance issues.
- The proposed driveway is offset from the driveway to the gas station on the other side of the roadway. Vehicles turning left out either driveway into the two-way left-turn lane would conflict with each other. This presents a safety concern, as the demand on drivers to watch for the offset driveway along with merging traffic along SR 161 leaves active modes vulnerable to being “missed”.
- The bus stop located south of the proposed entrance is a potential safety concern. A bus stopped in the lane of traffic could partially block sight distance for vehicles exiting the driveway, making the movement difficult and potentially unsafe.



Figure 2: Looking south on Meridian Avenue from approximate proposed site entrance.

FHWA guidance on Access Management in the vicinity of intersections¹ encourages limiting the number of conflict points at driveways. Driveways with offset alignments across major roadways, especially those with two way left turn lanes, are not recommended, as the number of conflict points increases significantly. These conflict points present an increased risk for drivers and non-motorized users.

¹ https://safety.fhwa.dot.gov/intersection/other_topics/fhwasa10002/fhwasa10002.pdf

Alternatives to Proposed Park Entry

Due to the safety concerns, a different site access location and/or site plan may need to be considered. Also to take into consideration when evaluating alternatives is that if the plan was to build a major development on the site, the primary access might be required to be off 36th Street E. This would be due to the known congestion and operations along Meridian Ave E. Additionally, WSDOT could implement access management at a later time and vehicle queues presently back up past the proposed project entrance during the PM peak period.

Below are details and considerations for two alternative locations, as well as recommendations if the current driveway location is retained.

Alternative 1: Current Parking Lot Location with Access off 36th Street E

One alternative would be to keep the current location of the parking lot but place the park site driveway on the south frontage along 36th Street E, roughly 200 feet (to the edge of driveway) east of the intersection of Meridian Avenue E & 36th Street E. This would negate any safety concerns from having the site driveway off Meridian Avenue E. Additionally, 36th Street E is a lower speed roadway than Meridian Avenue E.

The alternative driveway could take the place of the current proposed walkway that is shown between the historic windmill and the inclusive playground. This driveway alignment provides the opportunity for accessible and non-accessible parking spaces to be placed by the playground. This parking would be useful for families with young or special needs children and unloading picnic or party supplies at the park.

This alternative would take away some space for other park areas as a wider right-of-way than the planned walkway would be needed. Conflicts between cars and designated non-motorized areas could increase with this alignment. Safety precautions, including landscaped buffers or fencing, can help to keep the vehicles and active mode users separate. Additionally, traffic calming measures can be incorporated, such as speed humps, raised crosswalks, and designing the road to be meandering which can limit speeds. These measures increase the real and perceived safety of the site, especially considering the typical users of a playground.

Moving the park access point to 36th Street E, which provides access off of a cross street, as opposed to Meridian Avenue E is consistent with the City's recent evaluation of the Meridian Avenue parallel roads network completed by Transpo. The access roadway's smaller roadway section is consistent with the recommendations of that evaluation, as is the "disconnected" nature of this access from other north/south routes, limiting the use of the road by traffic not accessing the park.

Alternative 2: Southern Parking Lot Location with Access off 36th Street E

A second alternative would move the proposed site driveway to 36th Street E, but switch the parking lot site with the windmill and inclusive playground site. Similar to Alternative 1, this would also remove any safety conflict from having the site driveway off Meridian Avenue E. Alternative 2 would keep vehicular and non-motorized users more separated than Alternative 1, reducing the need for additional safety features. The tradeoff is the reduced opportunity for parking spaces near the inclusive playground, unless the roadway was extended to the playground.

This alternative could also work with the parking lot and windmill/playground being moved and the current proposed driveway location remaining the same, however the safety concerns presented under the Safety Evaluation section for access to Meridian Avenue E would be the same. Use of this alternative with an access to Meridian Avenue E south of the currently proposed location

would have similar concerns regarding the merge lane, vertical grade, offset driveways and transit stop proximity.

“No Change” Alternative: Leave Current Access

If the design of the park is left in the current configuration, due to safety concerns at the driveway, a right-turn only operation might be recommended. This would limit conflicts with the opposing driveway across Meridian Avenue E. There would still be potential sight distance concerns and impacts from stopped busses. Restricting right turns with a concrete island would provide pedestrians and cyclists with a refuge, potentially limiting the vulnerability of these users at the park driveway.

Summary

The currently proposed location of the park entrance driveway is off Meridian Avenue E. Due to safety concerns, two alternative locations are presented for consideration. Both alternative locations would place the entrance off 36th Street E, negating the safety concerns associated with a site access off Meridian Avenue E. Depending on the final site plan, it may also provide the opportunity to place ADA parking spaces near the inclusive playground.